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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/561,802	12/22/2005	Yasushi Washio	SHIGA7.035APC	1118
20995	7590	03/29/2010	EXAMINER	
KNOBBE MARTENS OLSON & BEAR LLP			LE, HOA VAN	
2040 MAIN STREET				
FOURTEENTH FLOOR			ART UNIT	PAPER NUMBER
IRVINE, CA 92614			1795	
			NOTIFICATION DATE	DELIVERY MODE
			03/29/2010	ELECTRONIC

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* YASUSHI WASHIO and KOJI SAITO

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Appeal 2009-013695  
Application 10/561,802  
Technology Center 1700

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Decided: March 25, 2010

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Before EDWARD C. KIMLIN, CHUNG K. PAK, and  
MARK NAGUMO, *Administrative Patent Judges*.

KIMLIN, *Administrative Patent Judge*.

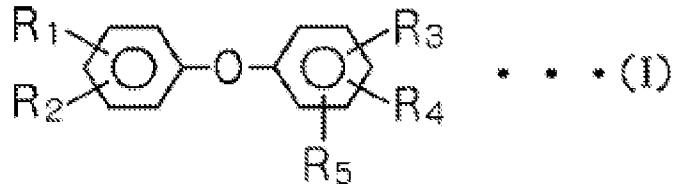
DECISION ON APPEAL

This is an appeal from the final rejection of claims 1-4. We have jurisdiction under 35 U.S.C. § 6(b).

Claim 1 is illustrative:

1. A developer composition for resists, comprising an organic quaternary ammonium base as a main component and a surfactant,

said surfactant containing an anionic surfactant represented by the following general formula (I):



wherein at least one member of R<sub>1</sub> and R<sub>2</sub> represents an alkyl or alkoxy group having 5 to 18 carbon atoms and any remaining member represents a hydrogen atom, or an alkyl or alkoxy group having 5 to 18 carbon atoms, and at least one member of R<sub>3</sub>, R<sub>4</sub> and R<sub>5</sub> represents a group represented by the following general formula (II):



wherein M represents a metal atom, and any remaining member represent a hydrogen atom or a group represented by the above general formula (II).

The Examiner relies upon the following references as evidence of obviousness (Ans. 3):

Sato	5,985,525	Nov. 16, 1999
Anzures	6,900,003 B2	May 31, 2005

Appellants' claimed invention is directed to a developer composition for resists comprising an organic quaternary ammonium base as the main component, and a surfactant of the recited formula wherein at least one of R<sub>3</sub>, R<sub>4</sub> and R<sub>5</sub> comprises SO<sub>3</sub>M as a substituent, wherein M represents a metal atom.

Appealed claims 1-4 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Sato in view of Anzures. The appealed claims also stand

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rejected under 35 U.S.C. § 103(a) as being unpatentable over Anzures in view of Sato.

Appellants have not separately argued any particular claim on appeal. Accordingly, all the appealed claims stand or fall together with claim 1.

We have thoroughly reviewed each of Appellants' arguments for patentability, as well as the Specification data relied upon in support thereof. However, we are in complete agreement with the Examiner that the claimed subject matter would have been obvious to one of ordinary skill in the art within the meaning of § 103 in view of the applied prior art. Accordingly, we will sustain the Examiner's rejections for essentially those reasons expressed in the Answer.

Anzures, as acknowledged by Appellants, discloses anionic surfactants that fall within the scope of the claimed formula, and the reference expressly teaches that the surfactant composition may be added to resist developer compositions to reduce residue and scum formation, as well as foam formation. Anzures provides the general teaching that the surfactant composition may be added to conventional resist developer compositions. Sato discloses what Appellants acknowledge at page 1 of the present Specification, last paragraph, namely, a developer composition for resists comprising the presently claimed organic quaternary ammonium base as a main component. Accordingly, based on the state of the prior art and the Anzures disclosure, we are in full agreement with the Examiner that it would have been obvious for one of ordinary skill in the art to add the claimed surfactant to a conventional resist developer composition comprising a quaternary ammonium base for the purpose of reducing residue and scum formation, as well as foam formation, as taught by Anzures.

Appellants submit that

[s]ince the modification of the compound of Anzures et al. to include the metallic element as disclosed by Sato et al. would render the teachings of Sato unsatisfactory for their intended purpose, there can be no motivation to modify the teachings of Anzures et al. to incorporate the metallic element of Sato et al. and vice versa.

(Br. 7, penultimate para.). This argument, however, misses the thrust of the Examiner’s rejection based on Anzures in view of Sato. This rejection is not based on any modification of the Anzures disclosure, let alone by incorporating a metallic element of Sato who, in fact, does not include a metallic element on the surfactant. Appellants have not addressed the obviousness of adding the metal-containing surfactant of Anzures to a conventional resist developer composition comprising the admittedly known organic quaternary ammonium base as a main component.

We also find no error in the Examiner’s reasoning that it would have been obvious to use the surfactant of Anzures in the resist developer composition of Sato. Sato, as emphasized by Appellants, cautions against using a metallic element in the developer composition because of “possible adverse influences caused on the performance of the semiconductor devices by the metallic contaminant” (col. 1, ll. 25-30). Anzures, which was filed more than five years after Sato issued, lists high resolution semiconductor manufacturing as an area for which the disclosed residue- and foam-reducing compositions are useful (col. 1, l. 47 to col. 2, l. 2). We therefore agree with the Examiner that it would have been obvious to use the metal in small amounts to minimize the possible contaminating effect warned of by Sato, while obtaining the reduction in residue and scum formation taught by Anzures. In other words, it would have been obvious for the skilled artisan

to determine the amount of metal that effects a balance between the known benefits and disadvantages.

Appellants rely upon Specification data for demonstrating unexpected results regarding improved dissolution rates when surfactants within the scope of the appealed claims are used in a resist developer composition. However, we are in complete agreement with the Examiner that the Specification data falls far short of being commensurate in scope with the degree of protection sought by the appealed claims. *In re Grasselli*, 713 F.2d 731, 743 (Fed. Cir. 1983). While the appealed claims encompass developer compositions for all resists, the data is limited to one specific resist, a positive-working photoresist containing a novolak resin and a naphthoquinone diazide. Significantly, Appellants have not established that the improved dissolution rates would reasonably translate to other resist materials. Also, the Specification examples that are representative of the present invention are limited to three specific metals, namely, sodium, potassium and calcium, whereas the appealed claims embrace all metal constituents on the surfactant. In addition, the Specification data is limited to developer compositions comprising an aqueous solution of 2.38 percent by mass of tetramethylammonium hydroxide. Moreover, Appellants have not demonstrated that the Specification results would be considered truly unexpected by one of ordinary skill in the art. *In re Merck & Co, Inc.*, 800 F.2d 1091, 1098-99 (Fed. Cir. 1986).

We have, consequently, weighed the probative value of Appellants' evidence of non-obviousness against the Examiner's evidence of obviousness and find ourselves in agreement with the Examiner that the evidence of obviousness outweighs the evidence of non-obviousness.

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In conclusion, based on the foregoing, the Examiner's decision rejecting the appealed claims is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a) (2008).

**AFFIRMED**

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